



National Park Service
U.S. Department of the Interior

Harpers Ferry Center

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NATIONAL PARK SERVICE STANDARD SPECIFICATIONS FOR AUDIOVISUAL PRESENTATION SYSTEMS AND EQUIPMENT MARCH 2008



National Park Service

STANDARD SPECIFICATIONS FOR AUDIOVISUAL PRESENTATION SYSTEMS AND EQUIPMENT

Harpers Ferry Center
Harpers Ferry, West Virginia

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Section 1. DEFINITIONS

Assistive Listening Systems: Assistive listening uses various devices that amplify volume for persons with mild to profound hearing loss who may or may not use a hearing aid. Assistive listening devices (ALDS) include headsets, ear buds, and hearing aids. The amplified sound is transmitted via radio frequency, infrared, or induction loops to the user's headset, ear buds, or hearing aid.

Audio Description: Audio description describes the visual content of video or multimedia programs. It provides individuals who are visually impaired with information that further describes the visual content not provided in the primary audio track. Audio description is a separate audio track synchronized with the program's primary audio track.

Class A Production Cost Estimate: Detailed cost estimate based on specifications for all audiovisual elements found accordance with Section 5, Installation Cost Estimates.

Contracting Officer's Representative: A Contracting Officer's Representative (COR) is the individual responsible for (1) monitoring the contractor's technical progress including the surveillance and assessment of performance and recommending to the Contracting Officer changes in requirements; (2) interpreting the scope of work; (3) performing technical evaluation as required; (4) performing technical inspections and acceptances required by this contract; and (5) assisting the Contracting Officer in the resolution of technical problems encountered during performance.

Equipment: Electronic devices used to play video, audio, or computer programs. It also includes devices and systems that control multiple programs, or that interface with other elements such as programmed lighting and electromechanical devices.

Government-Furnished Property: Property in the possession of, or directly acquired by, the Government and subsequently furnished to the Contractor for performance of a contract.

Integrator: A contractor who provides audiovisual systems services either directly or through established subcontractors to meet the requirements of this contract.

Installer: An established business specializing in the fabrication and installation of commercial audiovisual systems.

Maintenance Manual: A detailed document or set of documents that contains all pertinent information about each piece of equipment and describes all required service and maintenance.

Multi-Purpose Room: A room or facility that is used for a variety of purposes such as video presentations, meetings, lectures, and ceremonies. The room typically has a flat floor and moveable seating. To this end, simple playback of DVD, VHS, and computer presentations from a portable lectern are customary.

Operations Manual: A detailed document or set of documents aimed at providing park staff information necessary for the normal operation of all equipment and systems. The manual includes a troubleshooting guide.

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Production Documents: The phase of work where technical drawings and specifications are completed for moving the project into production.

Production Support: Creative and technical support during fabrication of the project to insure adherence to the project's design intent.

Submittal: All samples, documents (i.e., drawings, schedules, facsimiles), electronic files, and other materials that together represent the level of development of work at a given time.

Universal Design: The design of products and environments to be usable by all people, to the greatest extent possible, without assistance, adaptation or specialized design.

Section 2. PROJECT MANAGEMENT

2.1 Introduction

The purpose of the following Project Management tasks are to insure that scheduling, coordination, overseeing, and managing is effectively accomplished for all work produced under this contract.

2.2 General Requirements

The contractor shall assign a Project Manager to oversee the contract and shall also assign a Project Manager for each task order written under this contract.

2.3 Specific Requirements for Contract Project Management

The Project Manager shall be the primary point of contact between the National Park Service (NPS) Contracting Officer and COR for the contract. The Project Manager shall perform the following work:

- A. Notify the Contracting Officer and COR of any changes to the contractor's business operations that affect work under this contract, including but not limited to:
 - 1. Changes to contractor's address, phone and other contact information.
 - 2. Proposed changes to key personnel.
 - 3. Workload or capacity issues affecting the ability of the contractor to accept additional work.
- B. Communicate with the Contracting Officer and COR regarding major or broad issues affecting task orders written under this contract, including but not limited to:
 - 1. Clarification of work processes that are acceptable or unacceptable to the government under this contract.
 - 2. Informing the Contracting Officer and COR of misunderstandings, inconsistencies, or conflicting instructions encountered when working with different parks and different task order CORs.
- C. Prepare and submit an electronic status report every six months to the COR with a copy to the Contracting Officer which lists all active task orders by number. It shall include, at a minimum, the name of the park and/or client, type of work being performed and results achieved during the reporting period. It shall also include an indication of any current problems that may impede performance, the proposed corrective action, and the completion date.

2.4 Specific Requirements for Task Order Project Management

The Project Manager shall be the primary point of contact between the contractor and COR for individual task orders and shall perform the following work:

- A. The Project Manager shall have full authority to act for the contractor on all matters relating to a specific task order. The Project Manager shall maintain contact with the COR as necessary, and shall:
 - 1. Be available to take or respond to telephone calls or electronic mail messages during normal hours of operation (8:30 am - 5:00 pm local time). Local time is considered the time wherever the Contractor is performing the work for the National Park Service.
 - 2. Establish office procedures to ensure that messages are relayed to the Project Manager when out of the office or because of time zone differences.
 - 3. Respond to emergency messages from the COR on the same day they are received. All non-urgent messages from the COR shall be responded to in no less than two days.
- B. Provide quality control to ensure that all elements of project work meet the requirements of the contract specifications as follows:
 - 1. Provide routine inspections of ongoing work.
 - 2. Inform the COR of any issues that could affect work quality or schedule.
 - 3. Ensure that all work not acceptable or compliant with the specifications is corrected prior to review by the COR.
- C. Track work progress to ensure that the project is completed according to the schedule. Coordinate and confirm the dates for all submittals, meetings, and installation with the COR.
- D. Meet with the Contracting Officer and COR in accordance with Section 3, Audiovisual Planning and Design Process, and as specified in individual task orders.
- E. Receive, inspect, and inventory all GFP and ensure that this material is forwarded to the appropriate unit or person within the contractor's organization for use in the project. The Project Manager shall notify the COR within seven days after receipt if GFP is missing, incorrect, inadequate, or damaged for their intended purpose. The Project Manager shall notify the COR as soon as possible if GFP is lost or damaged while in the contractor's possession.

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- F. The Project Manager shall coordinate and ensure that all specifications for submittals are in accordance with Section 4, Submittals and Reviews, and as specified in individual task orders.
- G. Inspect completed work prior to shipment or final inspection by the COR to ensure that the work meets the standards of quality specified in this contract. Ensure that all the elements of the project are complete and ready for the final inspection. The Project Manager shall notify the COR if any elements of the work will not be ready for final inspection as scheduled.
- H. Coordinate installation of the audiovisual system with both the COR and with the Project Manager at the job site. Additional contacts may include: Project Architect, Electrical Contractor, Building Contractor, and Film Production Team.
- I. Ensure that all work is delivered and installed as scheduled. In the event that the COR reports problems during or after shipment, delivery, and/or installation, the Project Manager shall:
 - 1. Determine the nature of the reported problem, damage, or error and provide a proposal for resolution to the COR for review and approval.
 - 2. Ensure that approved corrections or repairs are made in a satisfactory manner and within the time scheduled by the COR.
- J. Provide onsite support and training at the park for the initial use of the systems during the first 60 days after acceptance of the installation.

Section 3. AUDIOVISUAL PLANNING AND DESIGN PROCESS

3.1 Introduction

Planning requirements for this contract includes, but is not limited to, planning for any one of the following or combination thereof: audio and video playback equipment, recording equipment, processors, switchers, distribution amplifiers, video projectors, film projectors, projection screens, video displays, audio mixers, audio amplifiers, microphones, loudspeakers, equipment controllers, control panels, touch screens, electronic cables, message displays, event timers, and assistive listening systems.

3.2 General Requirements

The contractor shall be responsible for all travel necessary to gather all pertinent information required to prepare a proposal outlining a plan to address the project needs. The contractor shall meet with the COR or their designated representative, be oriented to the site, review available documents and drawings, and meet with park staff.

A. Travel to Site

1. The contractor shall coordinate all travel with the COR or designated representative.
2. The contractor's workdays while on travel are 8-hour days.
3. The contractor shall bring all equipment they require while on travel and at the job site (for example, measuring instruments, computers, projectors, etc.).
4. The contractor shall provide for their own transportation while on travel.

B. Meetings and Presentations

1. The contractor shall develop an agenda in coordination with the COR.
2. The contractor shall discuss with the COR expectations for work to be presented.
3. The contractor shall identify key participants for meetings.
4. The contractor shall facilitate meetings.
5. The contractor shall document discussions and outcomes.
6. The contractor shall determine along with COR whether documents will be submitted in advance or at the presentation meeting.

3.3 Audiovisual Systems Proposal

Based upon information gathered during the site visit, the contractor shall prepare a comprehensive final proposal and installation plan, which shall include but is not limited to the following:

- A. Fabrication and/or Construction Drawings.
- B. Description of Proposed Systems and/or Construction Requirements.
- C. Description of Operation.
- D. Equipment List and Cost.
- E. Installation Cost Estimate.
- F. Installation Schedule.
- G. Installation Key Personnel and Credentials.
- H. Any Other Pertinent Information.

Section 4. SUBMITTALS AND REVIEWS

4.1 Introduction

Submittals and reviews are the key communication points between the contractor and the COR that document a project's overall progress and any remedial actions necessary to produce complete and acceptable deliverables.

4.2 General Requirements

- A. The contractor shall coordinate all submittals and review them for legibility, accuracy, completeness, and compliance with contract requirements.
- B. The contractor shall cross-reference all details that occur multiple times in a single or in multiple documents for consistency and accuracy.
- C. The contractor shall ensure that all submittals are delivered to the COR as scheduled for review and approval. Submittals shall be accompanied by a transmittal form describing all contents.
- D. The contractor shall provide three hard copies of each document and two copies of all electronic files, unless otherwise specified in the individual task orders.
- E. The contractor shall receive all review comments from the COR and take appropriate action as stated below:
 - 1. Approved Submittals – The contractor shall ensure that all changes, revisions, additions, or omissions required by review comments are addressed and incorporated into future submittals.
 - 2. Rejected Submittals – When submittals are rejected, the COR will notify the contractor, in writing, identifying the reasons for rejection. The contractor shall ensure that the submittal is completed and/or revised as required and resubmitted within the time scheduled by the COR. Reasons for rejections include:
 - a. Incomplete Submittals – Approval of the submittal is delayed because required elements are missing. The contractor shall submit all missing elements. When all elements are received and accepted, the COR will approve the submittal.
 - b. Unacceptable Submittals – The submittal is rejected due to poor quality of work or work that does not otherwise meet the established project goals. The contractor shall submit new material.

4.3 Specific Requirements for Individual Systems

- A. The contractor shall provide systems drawings, including block and line diagrams, showing all components of the existing as well as the new equipment to be installed.
 - 1. Building drawings representing the basic facility layout as necessary to accomplish the new work. These may be simple plans and elevations showing barriers, doorways, windows, equipment locations, etc. Existing drawings are not typically available.
 - 2. Specifications and Scope of Work (SOW) detailing all equipment, hardware, and materials to be used in accomplishing the new work. Specifications and SOW shall also include, but not be limited to, all project requirements for expertise, specialized tools, materials, hardware, components, knowledge, system performance, staff training, scheduling, and coordination necessary for each project.
- B. The contractor shall provide progress reports containing at a minimum, general information regarding project activity, any failures in the work and proposed solutions for those failures, project landmarks achieved, project landmarks delayed, schedule adherence, and requirements for government provided materials and media.
- C. The contractor shall provide a proposed schedule of work for the entire project. The schedule shall include significant landmarks such as design and drawings reviews at 50 and 100 percent completion, advertisement for proposal requests, proposal reviews, contract awards, and proposed start and completion dates for each site.
 - 1. Each design package shall be available for review by the COR at 50 percent and 100 percent completion prior to each package being published for construction.
 - 2. Drawings and specifications are necessary for obtaining accurate bids/proposals for each project. All drawings shall be produced in Auto Desk AutoCAD using a version no earlier than the last version prior to the most current available.

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3. Within 30 days following award of a contract, the contractor shall submit to the COR:

a. Shop drawings:

- 1) Floor plan showing any demolition work necessary for new system installation. Show both equipment to be removed and any building structure demolition. Clearly identify who is responsible – the audiovisual contractor, park, or other.
- 2) Floor plan showing all conduit, power outlets, data and/or phone outlets and any building modifications to be used in the new system. Clearly identify if they are existing or new and who is responsible for them.
- 3) Floor plan of final layout showing locations of all audiovisual components.
- 4) Single-line schematic drawings clearly showing the interconnection of all equipment including signal type; pictorial drawings are not acceptable;
- 5) Proposed rack layout elevations;
- 6) Drawings for all custom-fabricated equipment clearly indicating layout, critical dimensions, finish, and textual legends;
- 7) Schematic drawings of all custom circuitry;
- 8) Installation details for all items to be attached to or integrated into other work; and
- 9) Drawings will be reviewed by the COR prior to fabrication or installation.

b. Wiring Schedule:

At a minimum, the contractor shall indicate cable number, type of cable, source name with connector type, and destination name with connector type for all interconnecting cables.

Technical data is required for all cables that are not listed as pre-accepted in this specification, or are not pre-accepted for the intended use. Under no circumstances shall the contractor begin installation of any of these cables until approval is granted by the COR.

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4. If touch panel controls are part of the work, no less than two weeks prior to commencement of onsite work, the contractor shall submit to the COR:
 - a. Windows executable files which allow the COR to run a simulation of touch panel functionality on the CORs (PC) computer. These files shall be submitted to the COR on CD- or DVD-ROM Discs (2) for review and approval. After review by the COR, the contractor shall make any requested changes to page layout, nomenclature, and functionality and confirm all changes and operability.
 - b. Color hard copy (paper) graphic renderings of all touch panel control pages including operational notes and directions pertinent to the anticipated operation of the controls.

Section 5. INSTALLATION COST ESTIMATES

5.1 Introduction

The contractor shall submit a detailed installation cost estimate that conforms to the “design-to” figure for the project (if provided by the government). The cost for an element shall include the total amount for equipment, materials, supplies, mark-up, and labor rates in accordance with the contract.

5.2 General Requirements

Installation cost estimates provided by the contractor shall include the following:

- A. The most accurate pricing information available for the current stage of project development.
- B. Be equal to or less than the design-to cost and be a realistic representation of the cost for producing the audiovisual systems as designed. Estimates shall not be arbitrarily priced to match the target budget.

All design changes that increase the installation cost estimates above the target production budget, whether initiated by the contractor or requested by the government, shall be documented by the contractor and appended to the installation cost estimate, as alternate or additional items.

- C. Be itemized by category and prepared in a computer file that can be translated or opened by the most current version of Microsoft Excel.

5.3 Specific Requirements for Installation Cost Estimate

Unless specified otherwise in individual task orders, the contractor shall provide installation cost estimates that shall include the following information:

- A. All new materials, equipment, labor, and services necessary to complete the supply, delivery, fabrication, assembly, installation, commissioning, set-up, adjustment, and alignment of audiovisual systems.
- B. All incidental or related products or materials necessary to insure a complete and operating system, including, but not limited to, interface equipment, level matching equipment, and isolation equipment.
- C. Provision of personnel, access equipment, and test equipment for acceptance testing.
- D. Provision of maintenance and operations training and manuals.

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- E. All installation hardware or materials necessary to complete the work, including, but not limited to, mounting brackets, cabling, connectors, equipment racks and enclosures, AC plug strips (power bars), wire ties, and marking devices.
- F. Supply, delivery, and installation of seismic restraints in accordance with local building codes and regulations.
- G. Travel, lodging, and per diem expenses.
- H. Programming of control devices, including adjustments after one or two months of operation.
- I. All GFP items to be used in the new system. Identify if they are existing to be reused or if they are to be supplied to contractor and at what time.
- J. All demolition work and building modifications to be performed by the contractor including any removal of existing equipment and cabling.
- K. Provide a separate list without pricing of all building modifications to be done by others required for completion of the new system.

Section 6. ACCESSIBILITY

6.1 Introduction

Park visitors who have physical, sensory, or cognitive disabilities have legally established civil rights to receive the same information and context that NPS interpretive media provide fellow citizens.

All work performed under this contract shall be in accordance with the Programmatic Accessibility Guidelines for NPS Interpretive Media, dated October 2007, and available at www.nps.gov/hfc/accessibility. The Guidelines combine laws, policies, and best practices to offer design and presentation solutions that are acceptable in most situations. Contractors are advised to understand that physical access is required for employees to operate and service equipment.

In addition to Universal Design principles, specific design requirements for accessibility are mandated by statute. Laws that apply to work performed under this contract include the Americans with Disabilities Act, for non-Federal buildings and facilities, the Architectural Barriers Act, for Federal Government buildings and facilities, and Section 508 of the Rehabilitation Act, for electronic and information technology purchased by the Federal Government. Detailed information on these statutes may be found at www.access-board.gov.

Section 7. AUDIOVISUAL AND COMPUTER ELEMENTS – EQUIPMENT

7.1 Introduction

Equipment selections shall be based on the long-term requirements of the presentation program. The systems shall be easy to operate with minimal training and designed for long life and minimal maintenance.

Equipment and software components shall be carefully coordinated to insure that all design goals are met.

7.2 General Requirements

- A. The contractor shall provide equipment and systems designed with ease of use in mind, and require minimal maintenance.
- B. The contractor shall work with the appropriate project team members to insure that the electrical system in place will accommodate all specified audiovisual and control equipment. This coordination shall begin at the earliest possible opportunity and continue through the duration of the project.
- C. The contractor shall inform the COR of all proposed systems that will require network or Internet connectivity. Plans for such systems will require additional review and approval by the NPS to insure compliance with all network security requirements and Information Technology policies in effect at the time of submittal.

7.3 Specific Requirements for Design Development Phase

- A. Design Development I
 - 1. In coordination with the overall audiovisual strategy, the contractor shall identify the types of equipment that are proposed for use with each audiovisual and computer interactive element. Sizes and other broad characteristics shall be identified, but specific brands and models are not required at this phase of development.
 - 2. The contractor shall specify locations for all equipment, for signal and control wiring or conduit, and for power circuits/outlets to be used by the audiovisual system.
 - 3. The contractor shall develop start-up and shut-down procedures for the audiovisual system. This shall be conducted from a single control panel, or by use of a preprogrammed timer with a manual override function and battery backup. Start-up and shut-down shall be designed for convenient operation. Controls shall have limited access.

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B. Design Development II

The contractor shall provide detailed specifications for all audiovisual and computer equipment for the system as follows:

1. Specify equipment types and brands that are appropriate for the application, as well as for the environmental conditions in which the equipment will be installed. Industrial or commercial grade equipment shall be specified. Use of consumer or prosumer grade equipment, while sometimes unavoidable, is discouraged.
2. Specify all ancillary equipment required for a fully operational system, such as surge protectors, uninterruptible power supplies, push buttons, relays, and indicators.
3. All equipment shall be identified by brand name and model number.
4. For each product specified, provide the manufacturer's technical information sheets, the manufacturer and/or supplier's address, telephone number, and information regarding accessories and additional equipment.
5. Special order items and items that are not normally available from a manufacturer's stock shall be clearly identified as such.
6. Architectural specifications including, but not limited to, the number and placement of electrical circuits, voltage and load requirements for each circuit, and the number, type and placement for high and low voltage conduit and device boxes and enclosures.
7. Prices for all equipment shall be included within the Contractor's Design Development II Installation Cost Estimates. In addition, the cost of one spare unit for each type of equipment containing motors or other moving parts (other than adjustable controls) or has an estimated mean time between failure rating of less than 20,000 hours shall be included in the estimate unless otherwise specified by the COR.
8. A life-cycle cost estimate for all major components specified for the system.

7.4 Specific Requirements for Production Documents Phase

- A. The contractor shall update the audiovisual system equipment specifications to reflect all changes in the project and submit the updated equipment specifications as part of the document preparation submittals.

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The contractor shall investigate availability of the approved equipment during the production documents phase. When previously specified equipment has been discontinued or is unavailable through normal means, the contractor shall specify replacement equipment by brand name and model number, and provide cut sheets that show all product specifications.

- B. Prices for all equipment shall be included within the contractor's installation cost estimates. In addition, the cost of one spare unit for each type of equipment containing motors or other moving parts (other than adjustable controls) or has an estimated mean time between failure rating of less than 20,000 hours shall be included in the estimate unless otherwise specified by the COR.
- C. The contractor shall also provide a life-cycle cost estimate for all major components specified for the system.
- D. As specified in individual task orders, the contractor shall provide detailed wiring diagrams for the equipment in each audiovisual and computer interactive system. Wiring diagrams shall show the precise points of connection on each piece of equipment; wiring between systems and controllers, and the interface between audiovisual systems and lighting or other electromechanical devices. The contractor shall also clearly identify the circuit/outlet to be used by each piece of equipment; specify the load rating for each piece of equipment; and specify the total load on each circuit/outlet to be used for powering the equipment.

Section 8. MEDIA PRODUCTION

8.1 Introduction

In some instances the contractor may be required to provide limited audiovisual production services and inter-format media transfers in order to fulfill the requirements of a task order. These services will typically be limited to captioning, audio describing, encoding, transferring, replicating and/or duplicating GFP audiovisual programs. Production requirements and specifications will be listed in each task order.

8.2 Captioning

The NPS policy states that all training and informational video productions which support the agency's mission, regardless of format, that contain speech or other audio information necessary for the comprehension of the content, shall be captioned. The NPS policy also states that the captions shall be displayed at all times. Captions may be displayed on caption boards or on-screen; the display method will be specified in each task order. All programs to be captioned under this contract will be GFP, unless otherwise specified in the task order. The programs will typically be delivered to the contractor on a professional videotape format such as Digital Betacam, Betacam SP, 1", D2, DV-Cam, Mini-DV, DVC-Pro, or HD-Cam. The government will furnish electronic Microsoft Word copies of all scripts to be captioned, unless otherwise specified in the task order.

A. Caption Specifications

1. The contractor shall provide closed captions, unless otherwise specified in the task order.
2. All closed captions shall conform to National Captioning Institute line 21 specifications.
3. All captions shall consist of no more than two lines, and each line shall consist of no more than 32 characters, unless otherwise specified in the task order.
4. Captions shall use all uppercase characters, unless otherwise specified in the task order.
5. Captions shall be pop-on/pop-off versus roll-up.
6. Captions shall distinguish between narration and spoken dialogue, and shall indicate the presence of music and sound effects.
7. If captions are to be displayed on a caption board, they shall be placed on the top two lines of the four-line caption space.

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8. If captions are to be displayed on-screen, they shall be placed on the bottom two lines of the four-line caption space, and shall appear at the bottom of the screen. When images or on-screen titles interfere with caption readability, the caption placement may temporarily switch from the bottom to the top of the screen.

B. Caption Review, Approval, and Deliverables

1. The contractor shall submit all captions for review and approval by the COR. Caption review and approval will be seven calendar days, unless otherwise specified in the task order.
2. The contractor shall provide an open-captioned DVD check disc with visual time code and an electronic Microsoft Word file of the proposed caption script for review and approval by the COR. The contractor shall provide a second check disc and caption script to the park contact as specified in the task order. The contractor shall not proceed with the final deliverables until the check disc and caption script are approved by the COR, which may require the submission of additional revised check discs and scripts before final approval.
3. Upon approval of the captions, the contractor shall deliver the final captioned master on Digital Betacam videotape unless otherwise specified in the task order. The captioned master tape shall have continuous non-drop frame SMPTE time code and shall be formatted to NPS specifications in accordance with the specifications provided at the end of this Media Production section. Audio track configuration shall be identical to that of the GFP master tape unless otherwise specified in the task order.
4. If requested in the task order, the contractor shall deliver one master DVD-R disc and two backup DVD-R discs of the final captioned master. The discs shall be formatted as follows: one title, one chapter, continuous frame count from beginning to end, including black, ten seconds of black at head of disc before first picture fade-up, and 30 seconds of black after the last frame of the program. The discs shall be labeled in accordance with the specifications provided in Item 8.5, Master Tape Requirements.
5. The contractor shall deliver the final approved .scc caption file on a disc, which shall be labeled in accordance with the specifications provided at the end of this section. The contractor shall also deliver an electronic Microsoft Word file of the final approved caption script.

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C. Directory of Known Captioning Vendors:

CPC Computer Prompting and Captioning Co.

1010 Rockville Pike, Suite 306
Rockville, MD 20852
800-977-6678
www.cpcweb.com

Henninger Media Services

2601 Wilson Boulevard
Arlington, VA 22201
703-243-3444
www.henninger.com

Pillar to Post Video

205 S. Whiting Street, Suite 602
Alexandria, VA 22304
703-751-4787

Video Labs

15237 Display Court
Rockville, MD 20850
800-800-8240
www.videolabs.net

VITAC Corp.

1501 Wilson Blvd., Suite 1003
Arlington, VA 22209
703-807-2766
www.vitac.com

Action Duplication

8 Union Hill Road
Conshohocken, PA 19428
800-847-3827
www.actionduplication.com

Caption Colorado

5690 DTC Boulevard, Suite 500W
Englewood, CO 80111
800-775-7838
www.captioncolorado.com

Caption Max

2438 27th Avenue South
Minneapolis, MN 55406
612-341-3566
www.captionmax.com

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National Capitol Captioning

2820 Washington Blvd. #2

Arlington, VA 22201

703-243-9696

www.capitolcaptioning.com

National Captioning Institute

1900 Gallows Road, Suite 3000

Vienna, VA 22182

703-917-7600

www.ncicap.org

Visual Audio Captioning, Inc.

8930 Glenbrook Road

Fairfax, VA 22031

703/280-0041

www.visualaudiocaptioning.com

WGBH Caption Center

125 Western Avenue

Boston, MA 02134-1008

617-300-3600

main.wgbh.org/wgbh/pages/mag

8.3 Audio Description

The NPS policy states that all training and informational video productions which support the agency's mission, regardless of format, that contain visual information necessary for the comprehension of the content, shall be audio described. Audio description helps to ensure that people who are blind or have low vision enjoy equal access to film and video programs by providing additional descriptive narration of key visual elements. Audio description uses the natural pauses in the existing soundtrack to insert descriptions of essential visual elements such as actions, settings, appearance of characters, body language, costumes, lighting, on-screen text, etc., when such information is not offered in the existing soundtrack. This prerecorded narration is delivered on a separate audio track that is synchronized with the program's primary audio track.

In theater settings, audio description is typically played from a separate audio track or device and is not heard over the main loudspeaker(s). Visitors requesting audio description will typically receive a headset and receiver. The audio description track is then transmitted to the headset via a radio frequency or infrared signal. Only those visitors with headsets will hear the audio description track. In exhibit settings, where video programs are often activated via pushbutton or motion sensor, the audio description soundtrack may also be activated via pushbutton or motion sensor. The playback method will be specified in each task order.

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All programs to be audio described under this contract will be GFP, unless otherwise specified in the task order. The programs will typically be delivered to the contractor on DVD with visual NTSC time code. The government will also furnish electronic Microsoft Word copies of existing scripts, unless otherwise specified in the task order. In some instances, the government may require the contractor to record the final approved audio description track onto the unused audio tracks of a GFP prerecorded master tape. These programs will typically be delivered to the Contractor on a professional videotape format such as Digital Betacam, Betacam SP, 1", D2, DV-Cam, Mini-DV, DVC-Pro, or HD-Cam, and will contain prerecorded video and stereo audio. The contractor shall, in these instances, record the approved audio description onto channel 4 of the prerecorded master tape and lay back a mono mix of channels 1 and 2 onto channel 3, unless otherwise specified in the task order.

A. Audio Description Specifications

1. All audio description shall be written, narrated, and recorded by trained, professional audio description providers from the contractor's pre-approved list of key personnel.
2. All audio description shall conform to accepted industry standards and practices such as those provided by Audio Description International (<http://adinternational.org>) and the Audio Description Coalition (<http://www.audiodescriptioncoalition.org>).
3. All digital audio shall be created at a sampling rate of 48 KHz, unless otherwise specified in the task order.

B. Audio Description Review, Approval, and Deliverables

1. The contractor shall submit all audio description scripts electronically in Microsoft Word for review and approval by the COR. Script review and approval will be seven calendar days, unless otherwise specified in the task order.
2. Prior to recording the audio description soundtrack, the contractor shall provide an electronic Microsoft Word file of the proposed script to the COR and the designated park contact for review and approval. Each block of text in the audio description script shall reference an NTSC time code number from the GFP DVD, along with the preceding line from the program's original narration track. The contractor shall not proceed with the final deliverables until the audio description script is approved by the COR, which may require additional script submittals before final approval.
3. Upon approval of the audio description script, the contractor shall record the audio description soundtrack in a professional studio using a professional audio description narrator. The contractor shall then provide a CD check disc or MP3 file of the edited audio description track for review and approval by the COR. Upon final approval by the COR, the

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contractor shall transfer the final edited track to a master tape format to be specified in the task order. Typically, the audio description narration will be recorded onto channel 4 of a GFP prerecorded master tape. In some instances, when the contractor is also producing a captioned master, the government may require the contractor to create a captioned, audio-described master of a GFP program on Digital Betacam, Betacam SP, HD-Cam, or similar professional videotape format. Tape formats and audio track configurations will be specified in the individual task order.

4. All master tapes shall have continuous non-drop frame SMPTE time code and shall be formatted to NPS specifications in accordance with the specifications provided in Item 8.5, Master Tape Requirements.
5. The contractor shall deliver a backup copy of the final approved audio description soundtrack on a CD as an MP-3 digital audio file. The disc shall be labeled in accordance with the specifications provided at the end of this section. The contractor shall also deliver an electronic Microsoft Word file of the final approved audio description script.

C. Directory of Known Audio Description Vendors:

Audio Description Associates

6502 Westmoreland Ave.
Takoma Park, MD 20912
301-920-0218
www.audiodescribe.com

Audio Description Solutions

110 Lincoln Way West
New Oxford, PA 17350-1314
717-624-4860
www.audiodescriptionsolutions.com

Pillar to Post Video

205 S. Whiting Street, Suite 602
Alexandria, VA 22304
703-751-4787

Audio Eyes (Amber Boggs)

9250 Reseda Blvd., #107
Northridge, CA 91324
818-782-7733

Caption Max

2438 27th Avenue South
Minneapolis, MN 55406
612-341-3566
www.captionmax.com

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Narrative Television Network

5840 South Memorial Drive, Suite 312

Tulsa, OK 74145-9082

800-801-8184

www.narrativetv.com

National Captioning Institute

1900 Gallows Road, Suite 3000

Vienna, VA 22182

703-917-7600

www.ncicap.org

VITAC

101 Hillpointe Drive

Canonsburg, PA 15317-9503

800-278-4822

www.vitac.com

WGBH Media Access Group

125 Western Avenue

Boston, MA 02134-1008

617-300-3600

main.wgbh.org/wgbh/pages/mag

8.4 Media Duplication, Replication, Encoding, and Transfer Services

In some instances the contractor may be required to duplicate, replicate, encode and/or transfer GFP audiovisual programs. This will typically occur in small quantities as needed to support an audiovisual systems installation. The government will typically furnish programs on a professional videotape format such as Digital Betacam, Betacam SP, 1", D2, DV-Cam, Mini-DV, DVC-Pro, or HD-Cam. The contractor shall, in some instances, caption and/or audio-describe these masters as described in Items 8.2, Captioning, and 8.3, Audio Description, and then make backup copies in a specified format such as DVD, Digital Betacam, Betacam SP, or HD-Cam. In some instances the contractor may be required to provide MPEG encoding services and/or transfer programs to disc-based servers or solid-state media players in order to complete an audiovisual systems installation. Production requirements and technical specifications will be listed in each task order.

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8.5 Master Tape Requirements

All master tapes produced under this contract shall conform to the following specifications:

Event	Time Code Start	Time Code End
Tape Start	00:58:00:00	
Black/Silence	00:58:00:00	00:58:30:00
SMPTE Color Bars/Tone	00:58:30:00	00:59:30:00
Slate	00:59:30:00	00:59:35:00
Black/Silence	00:59:35:00	01:00:00:00
Program	01:00:00:00	01:XX:XX:XX
Black/Silence (30 seconds)		
SMPTE Color Bars (5 seconds)		
Black/Silence (30 to 60 seconds)		

8.6 Labeling Requirements for Master Tapes, Discs, and Slates

All tapes, discs, and slates produced under this contract shall be labeled as follows:

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TV-XXXX (Note: this is a tape number that will be furnished with each task order)

"Title of Program"

XX:XX (total running time of the program)

Audio Configuration (mono, stereo, etc.)

Captioning and/or Audio Description Information (e.g. "Closed Captioned on top two lines," "Open Captioned," "Audio Description on Channel 4")

Production Company

Mastering Date

Section 9. ANCILLARY CONSTRUCTION

9.1 Introduction

Work includes, but is not limited to, the design, work plan, specifications and installation as necessary for electric service upgrades, equipment wiring, acoustic treatment, ceilings, walls, partitions, performance stages, seating. In addition, work required to optimize space for use in diverse media playback for small groups, video teleconferencing, and for general meetings may require several acoustic and lighting target goals be met.

Section 10. INSTALLATION

10.1 Introduction

As specified in the individual task orders, general specifications for the planning, installation, and maintenance of audiovisual systems and hardware at NPS and other government locations follow:

A. General Requirements

1. The contractor shall provide all new equipment and installation materials, whether specifically enumerated or on any incorporated drawings.
2. Prior to ordering equipment and materials for the audiovisual system, the contractor shall provide four complete sets of the following:
 - a. Shop drawings showing all equipment, cables, connectors, and devices shall be used in the fabrication of the system. All equipment shall be labeled as to function. All cables and connection points shall be identified as to type and service. Cables shall be uniquely labeled as to their use and be assigned a numeric identifier. Drawings shall be no smaller than 24" x 36".
 - b. Descriptive literature for all major components specified or proposed for use in the system. This information shall be bound in notebook form. Loose materials and/or incomplete versions are not acceptable.
3. The contractor shall guarantee all equipment and materials provided as well as installation practices for a period of one year from the date of acceptance by the COR.
4. If requested to do so by the COR, the contractor shall be prepared to show by "Proof of Performance" test that the equipment being proposed for use in this project is equal to or better than that specified. This proof shall be provided by actual real time tests and not by printed sales literature.
5. Workers fully competent in the fabrication, installation, and implementation of professional audiovisual, video, sound reinforcement, and cinema playback systems shall perform the work specified in a thorough manner.
6. The contractor shall take precautions as necessary to guard against electromagnetic and electrostatic hum, spurious oscillation, to provide for adequate ventilation and to install the equipment to provide maximum safety to any user or operator.

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7. The contractor shall exercise care in wiring the systems to avoid damage to cables and equipment. All joints and connections shall be made with rosin core solder or with mechanical connectors approved by the COR.
8. The contractor shall submit to the COR a letter of completion when the system is complete and in proper operating condition. Final tests shall be made in the presence of the COR, who shall be notified of the test date a minimum of one week prior to that date.
9. The contractor shall bring to the attention of the COR any aspects of the designs and specifications included which the contractor anticipates or foresees will cause any problems, setbacks, or other undesirable results in delivery, fabrication, installation, operation, or other aspects of the systems described.
10. Preceding final closeout, the contractor shall provide a printed and bound manual for use in operation and simple troubleshooting of the audiovisual systems specified in the task order. One Master copy of the manual shall include the owner's operating and/or service manuals for each item of equipment used in the specified system. The user manual shall include detailed drawings and photos of system components showing critical control functions, control settings, and user connections. The manual layout as a minimum shall be:
 - a) Cover / Title
 - b) Contents
 - c) Systems Block diagram(s) (11"x17")
 - d) Systems Overview description(s)
 - e) System Operation
 - 1) Daily System Procedures
 - 2) Show Start operation
 - 3) Showing Other Media
 - a) DVD
 - b) VHS
 - c) Computer Imaging
 - 4) System Adjustments
 - a) Audio
 - b) Video
 - f) Troubleshooting Guide
 - 1) Video
 - 2) Audio
 - 3) Controls
11. Using the manual specified, the contractor shall provide no less than two hours of onsite training and instruction to personnel designated in writing by the COR. The contractor shall submit a draft copy of the training and troubleshooting manual for approval before final copying and distribution.

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12. The contractor shall provide the following information after the system is complete and accepted by the COR. These documents shall be bound.
 - a) As-built drawings for each system as derived from the shop drawings and actual installation results. As-built drawings shall be provided 22" x 34" or larger paper plots and .dwg or .dxf files on CD-Rom. Provide the electronic files in .dwg and .pdf format. .dwg files should be provided in the latest version of AutoCAD.
 - b) Installation, maintenance, and user instruction manuals as provided by the manufacturers of all components of the systems.

B. Functions and Objectives

1. The contractor shall remove from service all existing audiovisual equipment, hardware, materials and supplies not intended for reuse in the new system and turn over all such apparatus and materials to the park's designated representative.
2. The contractor shall provide and install fully working audiovisual, audio, and video playback systems comprised of contractor supplied and GFP as specified in the individual task order.
3. The contractor shall provide the audiovisual system described herein free of artifacts such as hum, noise, or distortion of any level above that specified by the manufacturers of the equipment specified and/or provided.

C. Equipment

1. Government-Furnished Property will be specified in the individual task order. Such equipment will be provided to the contractor for integration into the audiovisual system. The contractor, at no additional cost to the government, will replace equipment damaged while in the contractor's possession.
2. Video and playback requirements will be specified in the individual task order.
3. Audio requirements will be specified in the individual task order.
4. Control system requirements will be specified in the individual task order.
5. Equipment Racks will be specified in the individual task order.

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6. Hardware, Cable, and Connections

- a. All support hardware shall be of the highest grade of reliability and rated equal to at least 4 times the load weight of the equipment being supported.
- b. Cabling and Connectors: Care shall be taken to bundle and secure all cables that interconnect electronic devices integral to the system with destinations outside the equipment rack. Strain relief, harnesses and segregation of cables according to signal levels must be maintained throughout. Crimp type connections shall be accomplished with ratchet type crimping tools as recommended by the crimp connection device manufacturer. Possession by any contractor employee or personnel under the contractor's supervision of a single-action crimp tool on the job site will be sufficient evidence to require the contractor to reconstruct all such connections in the work. Use of gender adapters; video or audio connection adapters; molded, or modular connecting cables are prohibited for use in these systems. Unused conductors, shields, or drain wires shall be dressed under heat shrink tubing not cut.

7. Cables as manufactured by Belden, West Penn, Alpha, Liberty, or other manufacturers of premium grade low voltage cables with appropriate UL listings for the application shall be utilized.

8. Connectors as manufactured by Switchcraft, ITT Cannon, Neutrik, Kings, Amphenol, Trompeter, Canare or other manufacturers of premium grade audio, video, RF, and signal connectors shall be utilized. Metalized plastic shell connectors are not to be used in these systems under any circumstances.

9. Switches and relays as manufactured by EAO, Switchcraft, Grayhill, Microswitch, Potter & Brumfield, Radio Design Labs or other manufacturers of premium grade switch and relay products shall be utilized.

10. The contractor shall provide one set of any specialized tools (wrenches, lamp removal tools, etc.), necessary for dismantling or servicing switches lighted or not, and include one spare lamp for every lighted button.

D. Execution

- 1. As specified in the individual task order, the contractor shall calculate anticipated heat loads for equipment used in the audiovisual system and provide a detailed report to the COR. The contractor shall provide and install convection vents and/or cooling fans as necessary if required to prevent the equipment's environment temperature from rising no more

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than 30°F over the ambient temperature of the adjacent space. Fans, if used, shall be selected to provide the maximum amount of airflow with the minimum amount of noise contribution.

2. Persons trained and experienced in audiovisual, sound and video installation technology shall perform all assembly, fabrication, and installation work. All installation practices shall be adhered to as described in pertinent chapters of the following publications:
 - a. Audio Systems Design and Installation Author - Philip Giddings, Focal Press
 - b. Sound System Engineering – Second Edition Authors - Don and Carolyn Davis, Howard W. Sams & Co.
3. In addition to above references, all requirements of the latest published edition, including but not limited to the following publications shall apply unless otherwise noted. In case of conflict between cited or referenced standards, the more stringent example or standard shall apply to the situation in question.
 - a. National Electrical Code (NEC).
 - b. Federal Communications Commission (FCC).
 - c. Society of Motion Picture and Television Engineers (S.M.P.T.E.).
 - d. American Society for Testing Materials (A.S.T.M.).
 - e. Electronic Industries Association (E.I.A.).
 - f. Handbook for Riggers 1977 Revised Edition, W.G. Newberry; Calgary, Alberta Canada.
 - g. Basic Principals for Suspended Loudspeaker Systems, Technical Notes Volume 1, Number 19, JBL Professional Division.
 - h. Sound System Engineering – Second Edition, Don and Carolyn Davis, Howard W. Sams and Co.
 - i. Audio Systems Design and Installation, Philip Giddings, Focal Press.

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4. Directory of Known Manufacturers:

Ashly Audio

847 Holt Road
Webster, NY 14580
800-828-6308
www.ashly.com

APC

132 Fairgrounds Road
West Kingston, RI 02892
800-788-2208
www.apc.com

Atlas Soundolier

1859 Intertech Drive
Fenton, MO 63026
800-876-3333
www.atlassound.com

Belden Wire and Cable Corp.

2200 U.S. 27 South
Richmond, IN 47374
800-235-3361
765-983-5200
www.belden.com

Canare

531 5th Street #A
San Fernando, CA 91340
818-365-2446
www.canare.com

Crest Audio Inc.

16-00 Pollitt Dr.
Fair Lawn, NJ 07410
201-909-8700
www.crestaudio.com

Da-Lite Screen Company Inc.

3100 North Detroit Street
PO Box 137
Warsaw, IN 46581-0137
800-622-3737
574-267-7804
www.da-lite.com

EAO

198 Pepe's Farm Road
Milford, CT 06460
203-877-4577
www.eaoswitch.com

EXTRON

1230 South Lewis Street
Anaheim, CA 92805
800-633-9876
www.extron.com

Faroudja Laboratories

750 Palomar Ave.
Sunnyvale, CA 94085
408-735-1492
www.faroudja.com

Kings Electronics

1685 Overview Dr.
Rock Hill, SC 29730
803-909-5000
www.kingselectronics.com

Klipsch

3502 Woodview Trace Suite 200
Indianapolis, IN 46268
317-860-8100
800-544-1482
www.klipsch.com

MAHA Energy/PowerX

1647 Yeager Ave
La Verne, CA 91750
800-376-9992
www.mahaenergy.com

Mackie Industrial

16220 Wood-Red Rd NE
Woodinville, WA 98072
888-337-7404
www.mackieindustrial.com

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McCauley Sound

16607 Meridian Avenue East
Puyallup, WA 98375
877-622-2853
www.mccauley.com

Media Sonic

3420 N. San Fernando Blvd.
Burbank, CA 91504
818-566-3054
www.mediasonic.com

Museum Technologies

50 Cross Street
Winchester, MA 01890
800-729-6873
www.museumtech.com

Neutrik USA

195 Lehigh Ave.
Lakewood, NJ 08701
732-901-9488
www.neutrikusa.com

NEC Electronics America

2880 Scott Boulevard
Santa Clara, CA 95050
800-366-9782
www.necus.com

Panasonic

1 Panasonic Way
Secaucus, NJ 07094
323-436-3579
www.panasonic.com

Pioneer North America

2265 East 220th Street
Long Beach, CA 90810
800-872-4159
www.pioneerelectronics.com

Quam Nichols Company

234 East Marquette Road
Chicago, Illinois 60637
773-488-5800
www.quamspeakers.com

QSC

1675 MacArthur Blvd.
Costa Mesa, CA 92626
800-854-4079
714-957-7100
www.qscaudio.com

Radio Design Labs (RDL)

659 N. 6th Street
Prescott, AZ. 86301
800-281-2683
928-443-9391
www.rdlnet.com

Rane Corp.

10802 47th Avenue West
Muklteo, WA 98275
425-355-6000
www.rane.com

Sabine, Inc.

13301 NW US Highway 441
Alachua, Florida 32615-8544
386-418-2000
www.sabine.com

Shure

Shure Incorporated
5800 West Touhy Avenue
Niles, IL 60714-4608
847-600-2000
800-257-4873
www.shure.com

Stewart Audio

1000 Technology Drive
Columbia, CA 95310
209-588-8111
www.stewartaudio.com

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Switchcraft

5555 N. Elston Ave
Chicago, IL 60630
773-792-2700

www.switchcraft.com

Tannoy North America Inc.

Suite 1, 335 Gage Avenue,
Kitchener, Ontario, Canada
N2M 2C8

519-745-1158

www.tannoy.com

Technovision Inc.

5155 Spectrum Way #31
Mississauga, ONT, L4W 5A1
905-625-3472

www.technovision.com

Trompeter Electronics

818-707-2020

800-982-2629

www.trompeter.com

Trans-Lux Corporation

110 Richards Avenue
Norwalk, CT 06854
203-853-4321

www.trans-lux.com

Tryten Industries

999 3rd Avenue, Ste 3800
Seattle, WA 98104-4023
206-625-0440

www.tryten.com

VanSan Corporation

16735 East Johnson Drive
City of Industry, CA 91745-2415
626-961-7211
800-423-1829

www.vansan.com

Waber

2311 Statham Parkway
Oxnard, CA 93033
800-235-5929

www.condorpower.com

West Penn

2833 W. Chestnut St.
Washington, PA 15301
800-245-4964
412-222-6420

www.westpenn-cdt.com

Whirlwind

99 Ling Road
Rochester NY 14612
585-663-8820
888-733-4396

www.whirlwindusa.com

Section 11. CLOSEOUT PACKAGE

11.1 Introduction

At the conclusion of work, the contractor shall return all GFE and all other outstanding materials as specified in the individual task order. All material generated by the contractor in the process of completing a task order is the property of the government.

11.2 Specific Requirements for Closeout Package

Closeout Submittals - The contractor shall provide four copies of the closeout submittals as stated below. All submittals, including operating and maintenance manuals, shall be in the English language unless otherwise specified in the task order.

1. Project Record Drawings including, but not limited to:
 - a. single-line schematic drawings showing signal flow through the system; show different signal types, along with level and impedance variations; indicate actual equipment installed both by a generic description (e.g.: "16-channel audio mixer") and the manufacturer and model (e.g.: "Sonic Arts MX-1601"); indicate input/output terminals using the same terminology and labeling scheme as that appearing on the actual equipment; indicate cable numbers using the same numbering scheme as that used to physically mark the cables; pictorial system drawings are not acceptable; drawings must be in black on white without any reliance on color coding;
 - b. equipment rack layout drawings;
 - c. wire run lists showing all cables identified by the actual designations affixed to each cable;
 - d. pin-out schedules or diagrams for all connectors; and
 - e. "as-built" mechanical and layout drawings of custom-fabricated panels and boxes.
2. Electronic versions of each of the above drawings on a CD-ROM in AutoCAD 2000 or newer .DWG files as well as full-size versions in Adobe Acrobat PDF format.
3. Operations Manuals consisting of one or more permanent binders sectioned by tabs and an electronic version on CD-ROM containing:
 - a. special operational instructions for the system as a whole (e.g.: start-up/shutdown procedures); provide typical procedures to activate each major system function;
 - b. manufacturer's operating manuals for each unique piece of installed equipment or software;

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- c. brief operating instructions for custom-fabricated equipment;
 - d. a manufacturer's warranty certificate for each unique piece of equipment; if warranties are required to be registered, supply a warranty registration form for each piece of equipment to be registered; failure to provide warranty registration materials, at a minimum, binds the contractor to the same terms and conditions as the manufacturer would have had to meet had the warranty been registered; this in no way reduces any other warranty obligations of the contractor under the contract.
4. Maintenance Manuals consisting of one or more permanent binders sectioned by tabs and containing the following separated sections and an electronic version on CD-ROM, in order:
- a. a table of contents;
 - b. contractor data consisting of a page listing names, addresses, phone and fax numbers, and any other relevant contact information, for both the contractor and the COR;
 - c. a copy of all documents modifying the specification (e.g.: addenda, site memos, relevant correspondence, modifications, etc.); bind these in date order from earliest to latest;
 - d. overall system schematics; if the originals are large drawings, reduce them to one or more 11'x17" drawings to fit into the binder;
 - e. equipment list, broken down by system; for each line item, show the quantity provided, the manufacturer's name, the full model number, a brief functional description (e.g.: "1x6 Video Distribution Amplifier"), and serial numbers; this list should logically follow the overall system flow diagrams when read from left to right, first page to last;
 - f. a list of consumables (e.g.: lamps, fuses, or batteries) required to keep the system operating over time, along with sources of supply (if not readily available);
 - g. a recommended maintenance schedule followed by preventive maintenance and user-maintenance procedures, along with details on how to obtain service; include copies of sections from the applicable manufacturer's product manual's maintenance sections, along with any other maintenance procedures recommended by the contractor; clearly highlight any maintenance procedures required by the manufacturer to keep the manufacturer's warranty in force; include a troubleshooting guide detailing the more common malfunctions;

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- h. final settings of set-up and alignment controls for electronic processors and power amplifiers; tap connections of 70V components; configuration settings of all mode switches, DIP switches, screwdriver adjustments, and programmable hardware supplied under the contract, if different from the factory default; configuration settings of all software supplied under the contract;
 - i. schematic drawings of all custom-fabricated equipment and schematic drawings showing all modifications to off-the-shelf equipment.
- 5. Control system programming documentation and source files, to include control programming source code and ancillary programming files in electronic form on a CD-ROM, along with hard copy documentation of all programming.